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ABSTRACT OF THE DISCLOSURE

A method for polishing a material layer on a semiconductor wafer to a desired target layer thickness. The method includes calculating a compensated removal rate based on the thickness of material to be removed from a material layer on the wafer according to a standard value; the current material removal rate of the CMP apparatus; and the offset thickness, which equals the difference between the thickness of the material layer which would be attained using the current material removal rate and the target thickness for the material layer. The calculated compensated removal rate is then programmed into the controller for the CMP apparatus, which polishes the material layer at the calculated compensated removal rate to achieve the desired target layer thickness for the layer.